

REMARKS

The claim amendments and these remarks are submitted in response to an office action issued on September 16, 2004. A petition for a three-month extension of time is submitted concurrently herewith.

The Office Action rejected claims 1 and 8 under 35 U.S.C. § 103(a) as being unpatentable over Shimasaki et al. in view of Yamaguchi et al. After considering Applicants' response to the Office Action, the Examiner issued an advisory action on January 18, 2005 suggesting further clarifications of the difference between "the engine stop state" and "the engine idling state," to distinguish claims 1 and 8 from the cited references.

By this Amendment, claims 1 and 8 are amended as suggested by the Examiner. No new matter is introduced. Claims 1-8 are now active for examination. The previous indication of allowability of claims 2-7 is gratefully acknowledged. This obviousness rejection of claims 1 and 8 is respectfully traversed in view of the claim amendments and remarks presented herein.

Claims 1 and 8, as amended, provide an engine idle stop control system for a vehicle that has an engine, a motor/generator connected to the engine, an automatic transmission which transmits the rotation of the engine to a drive wheel, and a sensor which detects a vehicle stationary state. The control system also includes a sensor which detects an accelerator pedal depression amount in a microprocessor. This microprocessor is programmed to stop the engine according to conditions when the vehicle has been stationary, and restart the engine by starting the motor/generator when a request to restart the engine which has stopped is determined. The microprocessor controls absorption of torque by the motor/generator so that a starting torque according to the same accelerator pedal depression is effectively the same torque for vehicle starting from an engine stop state by restarting the engine, as for the vehicle starting from an

engine idle rotation state. In other words, the motor/generator functions as a generator to absorb a torque when the vehicle starts to run from the engine stopped state. However, the motor/generator does not absorb a torque when it starts to run from the engine idling state. In this manner, both starting torques become equal.

The amendment **clarifies** the **difference** between “the engine stop state” and the “engine idling state.” Specifically, when the vehicle starts from the “engine stop state,” the vehicle needs to restart the stopped engine. In contrast, under “an idle rotation state,” the engine still operates and the vehicle does not need to restart the engine from “an idle rotation state.”

It is respectfully submitted that the combination of references fails to disclose the controlling of the absorption of torque by the motor/generator so that starting torque according to the accelerator pedal depression is effectively the same torque for the vehicle to restart the engine from the engine stop state as for the vehicle starting from an engine idle rotation state, as described in claims 1 and 8.

Shimasaki discloses an engine starting from either a stopped state or from an idling state when a vehicle starts to run. In this reference, a starting torque of the engine from the engine stopped state is **different** from the torque of the engine from the engine idling state. However, there is no description in Shimasaki as how to compensate for this torque difference when the vehicle starts to run.

The Office Action relies on Yamaguchi et al. to show canceling of torque fluctuations. However, the canceling of torque fluctuations is much different from that claimed, so that the **combination** of Shimasaki and Yamaguchi, even if possible, would fail to disclose the present invention. In particular, Yamaguchi describes that when a vehicle starts, the drive motor 4 drives the vehicle and when the vehicle speed reaches a certain speed, a motor/generator 3 starts an

engine. When this engine starts, a torque generated by the engine would suddenly be added to a driving torque of the drive motor 4, which appears as a shock to the vehicle driving force. To cancel this shock, the drive motor 4 reduces the output torque of the motor at engine start. Hence, the absorbing torque by the drive motor 4 is equal to the engine torque generated, so that a drive torque of the vehicle does not change at all before and after the engine starting.

The teachings of Yamaguchi cannot be ignored, and must be considered in their entirety. Combining Yamaguchi with Shimasaki, the motor/generator would absorb the engine torque completely so that the vehicle would not actually be able to start since no starting torque would remain. In Shimasaki, when the vehicle starts to run, starting torque is generated only by the engine so that *the combination proposed by the Examiner would prevent running since the motor/generator would absorb the engine torque completely*. By contrast, the present claimed system does not absorb all of the starting torque itself, as in the manner suggested by Yamaguchi.

In other words, Yamaguchi teaches that when the engine starts while the vehicle is running by the motor, the engine torque is suddenly added to motor torque as a vehicle driving torque, causing a torque shock to the vehicle. Yamaguchi teaches absorbing such torque shock by the motor reducing a torque which is equal to the engine torque generated so that the total vehicle driving torque is kept unchanged. Taking these teachings into account, it is clear that Yamaguchi does not show or suggest a working embodiment when combined with the teachings of Shimasaki. Simply put, the combination would not work in the manner intended or in the manner claimed by the present invention.

In contrast, the motor/generator in claims 1 and 8 only absorbs the starting torque difference between engine starting from the stop state and the idling state. The engine starting

torque from the stop state and idling state is different, as described above, so that the motor/generator absorbs the engine torque corresponding to the starting torque difference only when the engine starts from engine stop state. In other words, the motor/generator does not absorb engine torque at all when the engine starts from the idling state. By contrast, in Yamaguchi et al. (as well as the combination of Yamaguchi and Shimasaki), the motor always absorbs the engine torque to keep the same vehicle driving torque when the engine starts.

Since Yamaguchi and Shimasaki, even if combined, fail to disclose every limitation of claims 1 and 8, Yamaguchi and Shimasaki cannot support a *prima facie* case of obviousness. Accordingly, the obviousness rejection based on Yamaguchi and Shimasaki is untenable and should be withdrawn. Favorable reconsideration of claims 1 and 8 is respectfully requested.

Claims 2-7, directly or indirectly, depend on claim 1 and incorporate every limitation thereof. The Examiner indicated that claims 2-7 would be allowable if they are rewritten into independent form including every limitation of the base claim and all intervening claims. As discussed above, claim 1 is patentable. Therefore, claims 2-7 also are patentable by virtue of their dependencies from claim 1, as well as based on their own merits. Favorable reconsideration of claims 2-7 is respectfully requested.

In light of the remarks above, this application should therefore be considered in condition for allowance and the case passed to issue. If there are any questions regarding this Amendment or the application in general, a telephone call to the undersigned would be appreciated to expedite the prosecution of the application.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including

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extension of time fees, to Deposit Account 502624 and please credit any excess fees to such deposit account.

Respectfully submitted,

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